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08/118,475 09/07/93 AFZALI-ARDAKANI

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EXAMINER

DELCOTTO, G

11M1/0602

ART UNIT

PAPER NUMBER

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NEW YORK, NY 10017

21

1105

DATE MAILED:

06/02/95

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined

☒ Responsive to communication filed on 2/21/95

☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), — days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

**Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:**

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.                 | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152.       |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474.     | 6. <input type="checkbox"/> _____   |

**Part II SUMMARY OF ACTION**

1. ☒ Claims 53-81 are pending in the application.

Of the above, claims \_\_\_\_\_ are withdrawn from consideration.

2. ☐ Claims \_\_\_\_\_ have been cancelled.

3. ☐ Claims \_\_\_\_\_ are allowed.

4. ☒ Claims 53-81 are rejected.

5. ☐ Claims \_\_\_\_\_ are objected to.

6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

**EXAMINER'S ACTION**

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### **Part III DETAILED ACTION**

#### ***Response to Amendment***

1. Applicant's arguments filed 2/21/95 have been fully considered but they are not deemed to be persuasive. However, the rejection of claims 53-81 under 35 US 103 as being unpatentable over Eisenbaumer in view of Sakai et al has been withdrawn.

The rejection of claims 53-81 under 35 US 103 as being unpatentable over Sakai et al, Wei, Jen et al or Tieke et al has been maintained. In addition, a new rejection has been made and is discussed below.

#### ***Claim Rejections - 35 US § 103***

2. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same

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person or subject to an obligation of assignment to the same person.

Evaluations of the level of ordinary skill in the art requires consideration of such factors as various prior art approaches, types of problems encountered in the art, rapidity with which innovations are made, sophistication of technology involved, educational background of those actively working in the field, commercial success, and failure of others.

The "person having ordinary skill" in this art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The evidence of record including the references and/or the admissions are considered to reasonably reflect this level of skill.

3. Claim 53-81 rejected under 35 U.S.C. § 103 as being unpatentable over Sakai et al, Wei, Jen et al <sup>OR</sup> Tieke et al.

The present claims are drawn to an electrically conductive composition containing an electrically conductive polymer and a polymer dopant, the method of making such a composition and articles formed therefrom. The electrically conductive polymer and the polymer dopant can be selected from lists of well known conductive polymers and well known polymer dopants. Each of the references listed above teach an electrically conductive composition containing an electrically conductive polymer and a polymer dopant as claimed by applicant. Each reference teaches at least one embodiment of applicant's invention. While some of

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applicant's dependent claims recite a specific conductive polymer with a specific dopant, nothing unobvious is seen in merely selecting a conductive polymer and a polymer dopant from lists of materials that are taught by the prior art.

Sakai discloses an electrically conductive composition, and method of making such, comprising a conductive polymer and a polymer dopant, which can be the same as those presently claimed. See columns 2 and 3. For example, Sakai teaches polypyrrole and polythiophene as polymers and teaches polyacrylic acid, polysulfonic acids and acids containing carboxylic groups as dopants. It would have been prima facie obvious for one skilled in the art to make an electrically conductive composition out of any combination of these polymers and dopants as Sakai clearly suggests that such may be done.

Wei discloses an electrically conductive composition, and method of making such, comprising polyaniline and a polymer dopant. The dopant can be polysulfonic acid and polyacrylic acid. See column 4, lines 4-8.

Jen discloses an electrically conductive composition, and a method of making such, comprising a polymer (heterocyclic vinylene) and a polymer dopant. The dopant can be polyacrylic acid and those containing carboxylic acid or sulfonic acid groups. See abstract and column 14, lines 57-65.

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Tieke discloses an electrically conductive composition comprising a mixture of polyimide and polypyrrole. See abstract examples.

While all of the references do not contain a specific example disclosing each of applicant's embodiments, the suggestion to do so is clearly stated in each patent. The skilled artisan would simply expect that the polymer dopants would produce results similar in degree to the other dopants listed and specifically demonstrated. Nothing unobvious is seen in doing so. Additionally, note that each reference teaches the shaping of the polymer material into useful articles.

With respect to instant claims 80 and 81, each of the above stated references teaches the use of polyamic acid which inherently leads to thermal imidization.

4. Claims 53-59, 66-70 and 79 are rejected under 35 U.S.C. § 103 as being unpatentable over Li et al.

Li et al teach polyaniline is soluble in common organic solvents and has been synthesized by using organic proton acids of large molecular size. See Abstract. Some of these acids include toluene-p-sulphonic acid and polystyrene sulphonic acid (PSSA). When these acids were used, the conductive polyanilines were soluble in some organic solvents.

Li et al do not exemplify the composition as instantly claimed.

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It would have been obvious to one of ordinary skill in the art to to determine with minimum testing, in the absence of a showing of unexpected or superior results, the optimum proportions for the components of the composition as instantly claimed since the broad teachings of Li et al encompass such a composition.

Applicant argues that Sakai et al, Wei, Jen et al or Tieke et al do not disclose a soluble composition of matter. In response, the prior art teaches electrically conducting polymers, Lewis acid polymer dopants and solvents which are the same as those in the instant claims. Therefore if the components of the instant claims are miscible, one could reasonably conclude those of the prior art also exhibit this state. With respect to the prior art, applicant states that the prior art does not teach the reaction product of two soluble polymers.

A reaction is defined in the Hackh's Chemical Dictionary, 4th edition, as a chemical change. A chemical change is clearly taught in the prior art references and, nowhere in the instant claims does it specify the type of reaction taking place between the two reactants.

Applicant argues that the polymer/polyacid blends of the prior art teachings are not soluble in organic solvent. In response, as stated above, applicant's have not submitted the declaration that they said they would showing the differences in

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solubility between the instantly claimed composition and the prior art. Also, the prior art teaches the same solvents that are disclosed in applicant's specification used to dissolve the polymers and dopants. Since the prior art teaches the same polymer, dopants and organic solvents as the applicant, the examiner maintains that the polymers and dopants of the prior art are inherently soluble together in the organic solvent as claimed by applicant.

With respect to applicant's declararion submitted with the amendment filed 2/21/95, it is insufficient to overcome the rejections set forth by the Examiner. There has been no side by side comparison made between the closest prior art and the invention as instantly claimed to show the superior properties of applicant's invention as compared to the inventions of the prior art. For example, in the declaration there is no showing of ingredients and proportions of the prior art compositions and the results in comparison to applicant's claimed composition. In addition, the specification only shows a few examples and not a representative amount to encompass the scope of the invention as instantly claimed. Note that, showing of unobvious results just be commensurate in scope with the claims. In re Lindner, 173 USPQ 356, 358.

The prior art references broadly teach an electrically conductive composition containing an electrically conductive

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polymer and a polymer dopant, the method of making such a composition and articles formed therefrom. The examiner is using each reference independently to reject the claims. While all of the references do not contain a specific example disclosing each of applicant's embodiments, the suggestion to do so is clearly stated in each patent. The skilled artisan would simply expect that the polymer dopants would produce results similar in degree to the other dopants listed and specifically demonstrated. Nothing unobvious is seen in doing so. Additionally, note that each reference teaches the shaping of the polymer material into useful articles.

#### *Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cao et al (US 5,232,631) disclose solutions and plasticized compositions of electrically conductive substituted and unsubstituted polyanilines in nonpolar organic fluid phases with functionalized protonic acids. Yaniger et al (US 4,855,361) disclose a conductive polymer blend which comprises mixing a polyimide with a base-type polymer containing carbon-nitrogen linkages, such as polyaniline, having a polyimide-like group covalently linked to nitrogen atoms of the base-type polymer.



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Remaining references cited but not relied upon are considered to be cumulative to or less pertinent than those relied upon or discussed above.

5. Applicant is reminded that any evidence to be presented in accordance with 37 C.F.R. 1.131 or 1.132 should be submitted before final rejection in order to be considered timely.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory R. Del cotto whose telephone number is (703) 308-2519.

GRD  
May 30, 1995



PAUL LIEBERMAN  
SUPERVISORY PRIMARY EXAMINER  
ART UNIT 115